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May 14, 1985

NATIONAL SPACE TRANSPORTATION AND SUPPORT STUDY (U)

BACKGROUND

NSDD-144, National Space Strategy, requested a joint DOD/NASA study to identify launch vehicle technology that could be made available for use in the post-1995 time period. NSDD-164, National Security Launch Strategy, directed that DOD and NASA jointly study the development of a second generation of space transportation system, making use of manned and unmanned systems, to meet the requirements of all users. ~~(C)~~

PURPOSE

The DOD and NASA are directed to conduct a comprehensive, one-year study. DOD will represent the interests of the Director of Central Intelligence during the course of the study. The purpose of the study is to prepare the United States to make important decisions regarding the second generation space transportation system for use in the post-1995 time period and to revitalize the nation's launch and logistics/support technology base. The principal end product of this study will be the identification of alternative launch vehicle technology developments deemed necessary or prudent for the post-1995 time period to meet U.S. space objectives. The study will also identify potential space mission classes for the 1995 period and beyond and provide an assessment of the corresponding potential space transportation and support capabilities which could be realized in this time period. A major part of the study should also address non-vehicle specific technologies which enable and enhance the development of future systems. ~~(C)~~

STUDY PRINCIPLES

The guiding principles of the study, as taken from U.S. space objectives, are to:

- satisfy the future needs of authorized users,
- substantially reduce the costs of space operations to the Government,

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- develop a flexible and robust space transportation system, and
- maintain world leadership in space transportation.

The alternative technology developments that best fulfill these principles should be identified. ~~(U)~~

STUDY TASKS

The study is to include the following tasks:

Task 1: Compile a set of potential space mission classes reflecting anticipated national security and civil government needs for the 1995 period and beyond. The mission sets are to be based on forecasts prepared independently by DOD (in conjunction with the Intelligence Community) for national security uses of space and by NASA for civilian uses of space. The space transportation needs for the two sets will be derived and documented independently by the DOD and NASA, respectively; the overlapping needs and those which are basically different will be explicitly identified. DOD will give particular attention to the emerging requirements of the President's Strategic Defense Initiative. NASA should consult fully with the President's National Commission on Space. The target date for completion of this task is approximately three months from the issuance of the NSSD. ~~(U)~~

Task 2: Perform the necessary system analyses, trade studies and technology assessments to define the transportation and infrastructure options (manned and unmanned launch vehicles, transfer vehicles, facilities and operations) both on the ground and in space to satisfy the overlapping as well as the independent portions of the two sets of potential missions. Consideration should be given to including large spacecraft launched as a whole, as well as their assembly in orbit from a number of smaller launches; on-orbit systems that would be expendable as well as those to be periodically serviced; systems designed for rapid access from flexible sites as well as those launched in a more conventional manner; and current systems and systems available with extensions of current technology as well as those benefiting from, or requiring, major advances and high innovation in technology as well as in new system architecture; and systems with low life cycle costs, considering the initial investments in new technology warranted by the resultant operational economies or capabilities. In the context of these considerations, the issue of survivability should be addressed. The end result of this task will be an assessment of potential system capabilities which could satisfy the transportation and support needs of the potential mission sets identified in Task 1 and the study principles identified above. ~~(U)~~

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Task 3: In response to the NSDD-144 Launch Vehicle Technology Study recommendation, identify launch vehicle technologies that could be made available for use in the post-1995 period. Emphasis should be on non-vehicle-specific technologies which will enable and enhance future space transportation systems. Technology investment strategies should be developed with the intent of revitalizing the nation's launch technology base. Interim results for this task should be available by August 15, 1985. ~~(S)~~

Task 4: Based on the technology needs and opportunities identified in the course of Tasks 2 and 3, identify the technology development programs which will make them available when required, including objectives, milestones, funding profiles and technical/cost risk assessments. ~~(S)~~

The results of the coordinated study will be available one year from the date of this NSSD and will be considered in the FY 1988 and later budget process of the DOD and NASA. It would also be desirable to identify initial technology investment opportunities for the FY 1987 budget submissions based on interim findings. ~~(S)~~

ORGANIZATION

This study will be performed by a joint DOD/NASA task team. Oversight of the study will be provided by a senior level joint steering group composed of an equal number of members from NASA and DOD. The final report on this study will be completed not later than one year from the date of this NSSD. The report will be reviewed by the Secretary of Defense, the Director of Central Intelligence, and the Administrator of NASA and then forwarded to the Senior Interagency Group for Space for review. Based upon its review, the SIG(Space) will make recommendations to the President, as appropriate. ~~(S)~~